and an assessment of the indications for and results of laser photocoagulation. These informative chapters reflect a careful review of recent ophthalmic literature and draw heavily on the authors' personal observations. Of particular value are comments pertaining to laser photocoagulation.

The authors bring to this volume a broad background of laser laboratory research and clinical ophthalmic investigation that adds substantial merit to the presentation. In this rapidly evolving aspect of ophthalmic science, this volume on ophthalmic angiography and laser coagulation serves a very useful purpose. It is recommended for ophthalmologists and is a text of great practical importance to specialists in the diagnosis and management of retinal disease.

BRADLEY R. STRAATSMA, M.D.

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PROGRESS IN MEDICAL GENETICS — Volume VI — Edited by Arthur G. Steinberg, Ph.D., Professor of Biology, Department of Biology, and Associate Professor of Human Genetics, Department of Preventive Medicine, Case Western Reserve University, Cleveland, Ohio; and Alexander G. Bearn, M.D., Professor and Chairman of the Department of Medicine, Cornell University Medical College and Physician-in-Chief, The New York Hospital, New York. Grune & Stratton, Inc., 381 Park Avenue South, New York, N.Y. (10016), 1969. 288 pages, $16.75.

The rapid expansion of knowledge in the many disciplines of medical genetics has made it increasingly difficult for the nonspecialist to keep abreast of significant advances. This sixth volume of *Progress in Medical Genetics* is part of a well established annual review in which the editors have international experts present critical essays on selected topics. The present volume contains seven discussions ranging from basic genetic mechanisms to practical clinical problems.

In his discussion of "Chromosomal Abnormalities in Clinical Medicine," D. H. Carr notes that clinical cytogenetics probably has reached a point of stability with over one hundred different types of human chromosome abnormalities having been recognized. At this stage of our knowledge he believes that the common clinical cytogenetic syndromes are well defined which permits a reasonably accurate prognosis for affected persons. With present techniques there are probably only a few very rare additional chromosomal syndromes which will be described. In his review he focuses primarily on original discoveries and key contributions to the disorders of clinical importance. In addition to cytogeneticists, the topics covered should be of particular interest to pediatricians, internists, and obstetricians. The extensive bibliography permits the interested reader to refer to original publications for more detailed information.

Richard D. McConnell discusses "Genetics and the Gastrointestinal System" and points out that there are few gastrointestinal tract disorders which are inherited as simple Mendelian traits. Most gastrointestinal conditions result from interactions between genetic and environmental factors, or appear to have a minimum clear genetic contribution. This may be related to the large environmental exposure of the gastrointestinal tract. The presentation is limited to conditions in which genetic studies are helping to clarify clinical diagnoses. He concentrates especially on the association of blood types with certain gastrointestinal disorders, an area in which he has been particularly active, but also considers Hirschsprung's disease, Crohn's disease, ulcerative colitis, and the various syndromes of intestinal polyps.

In "Genetics of Thyroid Disease," G. R. Fraser also emphasizes the importance of gene-environment interaction in the manifestation of a disorder, giving a degree of uniqueness to each affected person. He defines the role of genetic factors in the following clinical thyroid disorders: sporadic goitrous cretinism with discussion of the five inborn errors of thyroid hormone synthesis; sporadic nontoxic goiter; endemic goiter; endemic cretinism; sporadic nongoitrous cretinism; adult hypothyroidism; thyrotoxicosis; malignant neoplasia; and genetic variation in the thyroxine-binding proteins.

Autoimmunity has received much attention in recent years as a possible explanation for many poorly understood disorders. The genetic aspects of autoimmunity are still incompletely understood, but investigation of thyroid autoimmunity in man and the study of other animal models suggest that there may be a significant genetic role in autoimmunity. In his discussion in "Genetic Aspects of Autoimmunity," Philip J. Fialkow discusses thyroid disease in detail and less extensively covers idiopathic Addison's disease, diabetes mellitus, myasthenia gravis, autoimmune hemolytic anemia, the relationship of autoimmunity to chromosomal aberrations, and pernicious anemia and its association with idiopathic chronic gastritis.

"The Application of Bacterial Genetics to the Study of Human Genetic Abnormalities" is discussed in the chapter of the same title by Jean-Claude Dreyfus. Since Jacob and Monod proposed their regulator-operator concept for gene regulation in microorganisms, many attempts have been made to apply this concept to human genetics with still no definite examples of this possibility in man. However, the author believes there may be two conditions which could be explained by this concept: the erythrocytic porphyrias; and von Willebrand's disease. Although there appear to be genetic regulatory mechanisms in man, their characteristics have not yet been defined. Differences between microorganisms and mammals may be related to the large differences and needs between cells with a nucleus and those lacking a nucleus. The author also calls attention to the possible role of gene duplication in modifying regulatory mechanisms during the process of evolution from microorganism to mammals. He concludes that most human genetic disorders probably result from structural gene mutations rather than regulatory mutations.

The success of a graft between individuals is significantly influenced by the genetic similarity between donor and recipient and is mediated through immunological mechanisms. As in blood transfusions, the success is increased if the donor and recipient are as nearly alike as possible. Also as with blood transfusions, some genetic loci which control the histocompatibility antigens are more important than others in determining the success of tissue transplantation. In transplantation, the HL-A system seems most significant. In "Histocompatibility in Man—Genetic and Practical Considerations" by Fritz H. Bach, current knowledge particularly of this complex genetic locus is discussed. The test systems used to determine histocompatibility gene types include typing and matching tests of lymphocytes rather than red blood cells as in routine blood transfusions.

The final chapter entitled "The Genetics of Intestinal Carbohydrate Intolerance" by E. Eggemont is concerned with the inheritance and biochemical lesions of inborn errors of carbohydrate intolerance. He considers the breakdown of complex carbohydrates within the gastrointestinal tract and the intestinal absorption of the formed monosaccharides. Normal and abnormal digestion is discussed for starch, saccharose, and lactose. Absorp-

tion and malabsorption of glucose, galactose and fructose are also considered.

In this volume the variety of interesting topics are well presented. The diversity of discussed subjects makes this book of interest to persons with varied interests. It should be of particular interest to the medical geneticist, but also to the clinician who desires to keep aware of progress in medical genetics.

ROBERT S. SPARKES, M.D.

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CLINICAL CARDIOPULMONARY PHYSIOLOGY — 3rd Ed.—Sponsored by the American College of Chest Physicians. Edited by Burgess L. Gordon, M.D., Visiting Professor of Medicine, Jefferson Medical College of Thomas Jefferson University, Philadelphia; Richard A. Carleton, M.D., Professor of Medicine, University of Illinois; Director, Cardio-respiratory Section, Presbyterian-St. Luke's Hospital, Chicago; and L. Penfield Faber, M.D., Clinical Associate Professor of Surgery, University of Illinois; Attending Thoracic Surgeon, Presbyterian-St. Luke's Hospital, Chicago. Grune & Stratton, Inc., 381 Park Avenue South, New York (10016), 1969. 754 pages, $45.00.

This volume promoted by the American College of Chest Physicians replaced the second edition of ten years ago. The volume is in the same format as the previous editions and again consists of individual chapters authored by a number of different workers.

The book is divided into two sections: Section I is devoted to selected aspects of Cardiovascular Physiology. This section is written by experts, represents current thinking and is the most valuable part of the book. Individual chapters are arranged under either physiological principles, diagnostic procedures or disease processes, leading to some artificial separation of conceptially related material. While there are more authoritative physiologic references *(Handbook of Physiology: Circulation)* and more complete clinical references *(The Heart,* Hurst, and *Diseases of the Heart and Circulation,* Wood), this section does have chapters that will be useful for the concise presentations that they contain. Examples of excellent chapters included in this section are Myocardial Physiology (Sonnenblick, Parmley and Urschel), Hemodynamic Techniques (Mason and Braunwald) and Pathophysiology of Ischemic Heart Disease (Scheuer and Leonard).

Section II is devoted to Pulmonary Physiology and consists of a less authorative and less up-to-date sections of pulmonary topics ranging from normal anatomy and physiology to chapters concerned with interrelationships between gas exchange and surgery. This section is more uneven in that some sections are very good, others not so good. There is a wider gap in this section between the quality of the physiology presented and that available elsewhere *(The Handbook of Physiology: Respiration).* A few faults must be mentioned. The chapter on "Diffusion" contains no references since 1958. The resurgence of interest in the physiology of blood O_2 transport resulting from the discoveries of the profound effects of organic phosphates on the O_2 affinity of hemoglobin is omitted in discussions of the "Standard O_2 Dissociation Curve," in spite of the particular relevance of this adaptive process to patients with cardiopulmonary diseases. Coverage of an old topic, pulmonary mechanics, is neither concise nor up-to-date. Coverage of a new topic, pollutant and environment-related pulmonary disorders, is omitted. Why a chapter on bronchiectasis and not one on bronchogenic carcinoma?

It is becoming increasingly apparent that cardiologists taking care of their patients must have an intimate knowledge of lung function and that pulmonologists should have a knowledge of heart function. It would have served a useful purpose if this hybrid volume had had an acceptable section in which interrelationships between cardiac and pulmonary function were more explicitly and concisely summarized.

CARROLL E. CROSS, M.D.

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DIGITALIS—Charles Fisch and Borys Surawicz; in collaboration with Suzanne B. Knoebel and Kalman Greenspan. Grune & Stratton, Inc., 381 Park Avenue South, New York, N.Y. (10016), 1969. 230 pages, $14.75.

This monograph is another publication based on a postgraduate symposium. Such publications now account for a significant number of new medical books. The common weakness of such monographs is the repetitious publication of known data, for speakers are usually invited on the strength of their previous publications on a given subject. This book is carefully edited and is one of the best "symposium" monographs in the field of cardiology. There are four sections: (1) Chemistry and Metabolism of Digitalis; (2) Effect on Fluxes and Contractility; (3) Electrophysiological Aspects; (4) Clinical Use of Digitalis. Each section has a brief introduction by the editors, followed by two to four articles. Some of the authors are well known in their respective fields, others less well known—all present their respective subjects well, with a minimum of repetition of previous writing. The introduction is written by Louis N. Katz, and the epilogue by Charles K. Friedberg. Friedberg's summary is a delightful exposé of clinical wisdom, and one can only share with the editors their regrets, expressed in the preface, that Dr. Friedberg's comments had to be abbreviated because of space requirements. The printing and illustrations are well done. There is only one criticism regarding the structure of the symposium: the absence of a section on hemodynamics of digitalis. After all, the heart is a pump, which digitalis is purported to strengthen. It would appear that everything written about this drug is subservient to a single question: to what extent is digitalis capable of increasing the flow and reducing filling pressures in a failing heart? In their omission the arrangers of the symposium simply acknowledge the fact that this is a badly neglected aspect of present-day knowledge of digitalis.

ARTHUR SELZER, M.D.